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Giant keratoacanthoma on the inner surface of the prepuce

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SUMMARY Giant keratoacanthoma on the inner surface of the prepuce was observed in a 45-year-old man. First symptoms had appeared three months earlier. The tumour was surgically removed. The main histological features of the tumour were enormous, but relatively regular, acanthosis of rete pegs revealing no similarity to the squamous-cell carcinoma, and an exclusively parakeratotic eleidine-containing central plug. The name parakeratoacanthoma is suggested for this type of tumour.

Introduction

Keratoacanthoma (KA) has evoked interest because it grows rapidly, has excessive keratinisation, and a tendency to regress spontaneously (Rook and Whimster, 1950; Baer and Kopf, 1963).

KA on the inner surface of the prepuce is unusual and we have not been able to find a previous report in the literature. This location is interesting to the venereologist and dermatologist for several reasons:

1. The tumour in this case arose in the typical site for a syphilitic chancre and could look the same if the central keratinous plug were spontaneously separated or removed.
2. Its appearance in this hairless area was associated with histological differences, compared with classic descriptions.
3. The possibility of the transmission of an unknown infectious agent has been suggested in the aetiology of KA (Zelickson and Lynch, 1961; Zelickson, 1962; Gay Prieto *et al.*, 1964) and this seems especially likely in this area.
4. The large, hard, rough lesion did not disturb sexual intercourse.

Material and methods

CASE RECORD

A 45-year-old mason attended the Dermatological Clinic on 12 May 1975 with a lesion on the inner surface of the prepuce. Three months earlier he had noted a small papule which had enlarged, without causing any complaints or disturbance to intercourse.

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EXAMINATION

On examination, the only abnormality was a hard, round, raised tumour 3 cm in diameter on the inner surface of the prepuce. The flesh-coloured margins changed gradually into a whitish-yellow strongly adherent horny plug in the centre of which was a crater filled with a darker, rougher, horny mass (Fig. 1). Inguinal lymph nodes were not enlarged.

LABORATORY INVESTIGATION

Haemoglobin 85 g/dl, erythrocyte sedimentation rate 3 mm/h; WBC $4{\cdot}4 \times 10^9$/l with normal differential count; urine and chest radiographs normal; serum Venereal Diseases Reference Laboratory, treponemal immobilisation and absorbed fluorescent antibody tests were all negative.

PATHOLOGY OF THE TUMOUR

After total excision of the tumour in the surgical clinic and its subsequent fixation, two main components were visible on the cut surface of the tumour: a darker area which penetrated in a tuft-like form into the underlying stroma and a second, much larger, whitish one which was arranged in closely-packed strands and extended towards the surface (Fig. 2).

Histologically, the basis of the tumour comprised connective tissue. In the vicinity of the epidermal part there were dilated capillaries, venules, and arterioles, filled with blood. In the subepidermal region there was a dense band of lymphocytes, plasma cells, histiocytes, and eosinophils.

The main part of the tumour was formed by enormously acanthotic, closely-packed rete pegs, separated from each other by only thin bands of connective tissue, with compressed and elongated

Fig. 1 *Giant keratoacanthoma on inner surface of the prepuce*

capillary loops (Fig. 3). The epithelial columns were sharply demarcated from the underlying stroma, forming in places small islands separated from the main epithelial mass; only a few incomplete horny pearl formations were observed. The acanthotic pegs on the dermo-epidermal border were lined with one to three layers of basophilic cells corresponding with the basal epidermal cells, most being regularly arranged; in places these were elongated and flat under the pressure of the growing rete cells which showed gradual loss of basophilic properties in favour of the eosinophilic ones. Mitotic figures within the cells of the basal layer and the cells of the overlying prickle cells were evident. The Malpighian layer forming the lower part of the tumour was composed of 20 to 50 rows of cells; the intercellular bridges were seen clearly in lower rows of cells, gradually disappearing; the sharply demarcated nuclei with deeply stained nucleoli progressively lost their regular contours and collapsed passing subsequently into a pyknotic stage during further dehydration, shrinking, and devitalisation of cells which then formed a thick parakeratotic, eosinophilic central plug.

Staining with Martinotti's method revealed an intensive golden-hued appearance of parakeratotic masses corresponding to the eleidine.

COURSE

The histopathological findings supported the clinical diagnosis of an hypertrophic form of KA.

The surgical removal left a smooth linear scar and there was no recurrence during one month of observation after which the patient defaulted. The wife of the patient did not attend despite several requests.

Discussion

The histopathological features of this case show certain peculiarities due probably to the unusual location of the tumour. The arrangement of the epithelial columns was almost strictly acanthotic, without requiring differentiation from squamous-cell carcinoma which is sometimes indented (Lever, 1967; Montgomery, 1967; Pinkus and Mehregan, 1969; Sanderson, 1969). The keratinisation was incomplete with a persistence of nuclei up to the surface of the eleidine-containing central plug.

In our own series of 15 cases of KA, we found only two with exclusively parakeratotic formation of the central plug. We suggest that such forms should be called 'parakeratoacanthoma' instead of 'keratoacanthoma'.

The excessively rapid growth of rete cells and their equally rapid mummification led to the formation of the enormous parakeratotic central plug.

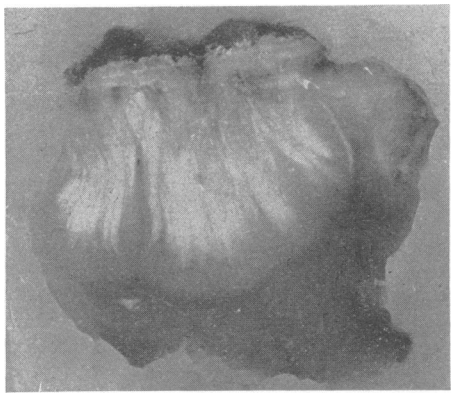

Fig. 2 *The vertically sectioned tumour, embedded in paraffin (before microtome cutting and staining). Twice enlarged*

Fig. 3 *The lower part of the tumour (below central plug). Left: parakeratosis beginning within the acanthotic peg. Haematoxylin and eosin,* × 135

The role of an unknown infectious agent in the aetiology of KA, and a possibility of its sexual transmission should be borne in mind because of the unique conditions in the praeputial sack—such as, microaerophilic milieu, constant humidity, frequent inflammatory states with denudations of epithelial cover, and the possibility of the mechanical, implant-like retention of the genital secretions of the partner after the sexual intercourse.

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